

Claims

What is claimed is:

1. A chemical composition for addition to battery plate
5 pastes, said chemical composition comprising:
 lead oxide; and
 sulfuric acid.
2. The composition of Claim 2, wherein the lead oxide and
the sulfuric acid react to form tetra basic lead sulfate
10 crystals.
3. The composition of Claim 2, wherein the TTBLS crystals
are micronized.
4. A chemical composition for addition to battery plate
pastes, said chemical composition comprising:
15 a first complexing agent comprising tetra basic lead
sulfate;
 a second complexing agent comprising a lead oxide; and
 a third complexing agent comprising sulfuric acid.
5. The composition of Claim 4, wherein said first
20 complexing agent, said second complexing agent and said third
complexing agent react to form tetra basic lead sulfate crystals.
6. The composition of Claim 4, wherein the lead oxide
comprises lead monoxide.
7. The composition of Claim 4, wherein the sulfuric acid
25 is dilute.

8. The composition of Claim 4, wherein the lead oxide is high in orthorhombic lead oxide content.

9. The composition of Claim 4, wherein the TTBLS crystals are micronized.

5 10. A method of producing an additive for a battery plate paste, comprising the steps of:

mixing together water and lead oxide;

mixing sulfuric acid into the water and lead oxide mixture to create TTBLS crystals.

10 11. The method of Claim 10, further comprising the step of micronizing the TTBLS crystals.

12. A method of producing an additive for a battery plate paste, comprising the steps of:

15 mixing together water and a lead oxide complexing agent to create a first substance;

mixing together the first substance with a tetra basic lead sulfate complexing agent to create a second substance;

mixing together the second substance with a sulfuric acid complexing agent to create TTBLS crystals.

20 13. The method of Claim 12, wherein the sulfuric acid is dilute.

14. The method of Claim 12, wherein the sulfuric acid is added at a slow constant rate, with vigorous mixing.

15. The method of Claim 12, wherein the lead oxide is high in orthorhombic lead oxide content.

16. The method of Claim 12, further comprising the steps of:

5 micronizing the TTBLS crystals.

17. The method of Claim 12, further comprising the steps of:

centrifuging the TTBLS crystals;

drying the TTBLS crystals; and

10 placing the TTBLS crystals through a micromill to create micronized TTBLS crystals.

18. The method of Claim 12, wherein the sulfuric acid adjusts the pH of the first substance.

19. The method of Claim 12, wherein the lead oxide
15 comprises lead monoxide.

20. The method of Claim 12, wherein the TTBLS crystals comprise approximately 1-90% by total formula weight water, approximately 0.05-20% by total formula weight sulfuric acid, approximately 10-70% by total formula weight lead oxide, and
20 approximately 0.01-5.00% by total formula weight tetra basic lead sulfate.

21. The method of Claim 20, wherein approximately 1-2% of said sulfuric acid is added to the water to lower the pH of the water to approximately equal or less than 2.

22. The method of Claim 21, wherein approximately 5-10% by total formula weight sulfuric acid is added to the first substance.

23. A battery paste, wherein the composition claimed in Claim 1 is added into battery paste mix.

24. A battery paste, wherein the composition claimed in Claim 4 is added into battery paste mix.

25. The battery paste claimed in Claim 24, wherein said battery paste is used to produce positive battery plates.

26. The battery paste claimed in Claim 24, wherein said battery paste is used to produce negative battery plates.

27. A method of producing a battery paste, said method comprising the steps of:

mixing together a lead oxide complexing agent and a tetra basic lead sulfate complexing agent to create a first substance;

mixing together water and a sulfuric acid complexing agent to create a second substance;

mixing together the first substance with said second substance to create a battery paste additive;

mixing together the battery paste additive with a battery paste mix.

28. A method of producing a battery plate paste,
comprising the steps of:

creating a micronized tetra basic lead sulfate chemical
composition; and

5 incorporating said chemical composition into a battery
paste mix.

29. The method as claimed in Claim 28, wherein the tetra
basic lead sulfate chemical composition comprises:

lead oxide;

10 sulfuric acid; and

water.

30. A battery paste additive comprising:

water;

lead oxide;

15 sulfuric acid; and

tetra basic lead sulfate.

31. The battery paste additive of Claim 30, wherein the
additive comprises approximately 1-90% by total formula weight
water, approximately 0.05-20% by total formula weight dilute
20 sulfuric acid, approximately 10-70% by total formula weight lead
oxide, and approximately 0.01-5.00% by total formula weight
tetra basic lead sulfate.

32. The battery paste additive of Claim 30, wherein the additive promotes formation of tetra basic lead sulfate in a battery paste.

33. A method for making a battery plate, comprising the
5 steps of:

mixing micronized tetra basic lead sulfate with a battery paste mix to create a battery paste; and
curing the battery paste.

34. A battery plate made by the method of Claim 33.

10 35. The composition claimed in Claim 23, wherein said additive comprises approximately 0.25-5.00% by weight of the lead oxide in the paste mix.

36. The composition claimed in Claim 24, wherein said additive comprises approximately 0.25-5.00% by weight of the
15 lead oxide in the paste mix.